

# Algebra/Topology Seminar

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## PROVING HOMOLOGICAL STABILITY USING THE RANDAL-WILLIAMS–WAHL MACHINE

Thursday, November 6, 2025

3:00 p.m. in Massry B010

**ABSTRACT.** A sequence of groups  $G_1 \rightarrow G_2 \rightarrow \dots$  exhibits *homological stability* if the induced maps on homology  $H_i(G_n) \rightarrow H_i(G_{n+1})$  are isomorphisms for  $n$  large relative to  $i$ . In this talk, we explore an axiomatization due to Oscar Randal-Williams and Nathalie Wahl of conditions on the groups  $G_n$  that imply homological stability, and show how this applies to classical groups of interest. We then explain Quillen’s spectral sequence argument and how it gives a proof of homological stability in the Randal-Williams–Wahl setup.